Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of Claims:

Claims 1-2 (Canceled)

3. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit that is configured to convert an optical signal that is received from any external source, to an electric signal;

a decoding circuit that is configured to decode the electric signal converted by said optical reception circuit and to judge whether or not the decoding is normally completed;

a reception light intensity level judgment circuit that is configured to judge an intensity level of light received from the external source based on the electric signal from said optical reception circuit;

a coding circuit that is configured to code data to be transmitted from the digital optical communication device;

an optical transmission circuit that is configured to convert the data coded by said coding circuit to an optical signal and to transmit same at a determined light emission intensity, the determined light emission intensity being based on the judgment by said reception light intensity level judgment circuit and the judgment by said decoding circuit;

wherein the light emission intensity determined by said optical transmission circuit is one of a plurality of different light emission intensity values, in the case where said decoding circuit judges that the decoding is normally completed;

wherein said plurality of different light emission intensity values each correspond to a different range of light intensity levels of received light; and

wherein the light emission intensity determined by said optical transmission circuit is determined without referring to the intensity level judged by said reception light intensity level judgment circuit in the case where said decoding circuit judges that the decoding is not normally completed.

4. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit being configured to convert an optical signal that is received from any external source, to an electric signal;

a decoding circuit being configured to decode the electric signal converted by said optical reception circuit and to judge whether or not the decoding is normally completed;

a reception light intensity level judgment circuit being configured to judge an intensity level of light received from the external source based on the electric signal from said optical reception circuit;

a coding circuit being configured to code data to be transmitted by the digital optical communication device;

an optical transmission circuit being configured to convert the data coded by said coding circuit to an optical signal and to transmit same at a determined light emission intensity, the determined light emission intensity being based the judgment by said reception light intensity level judgment circuit and the judgment by said decoding circuit;

wherein the light emission intensity determined by said optical transmission circuit is one of a plurality of different light emission intensity values, where the plurality of different light emission intensity values each correspond to a different range of light intensity levels of received light;

an optical fiber connected to said optical transmission circuit; and

an optical fiber connected to said optical reception circuit.

Claims 5-6 (Canceled)

7. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit that is configured to convert an optical signal being received from any external source, to an electric signal;

a decoding circuit that is configured to decode the electric signal converted by said optical reception circuit, to judge whether or not the decoding is normally completed, and to extract reception light intensity information of a secondary station determined and transmitted by a primary station;

a coding circuit that is configured to code data to be transmitted by said digital optical communication device;

an optical transmission circuit being configured to determine a light emission intensity based on the reception light intensity information of the secondary station extracted by said decoding circuit, and to convert the data coded by said coding circuit to an optical signal and to transmit same at a determined light emission intensity;

wherein the light emission intensity determined by said optical transmission circuit is one of a plurality of different light emission intensity values, where the plurality of different light emission intensity values each correspond to a different range of light intensities;

an optical fiber connected to said optical transmission circuit; and

an optical fiber connected to said optical reception circuit.

8. (Canceled)

9. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit that converts an optical signal received from any external source to an electric signal;

a decoding circuit being configured to decode the electric signal converted by said optical reception circuit and to judge whether or not the decoding is normally completed;

a reception light intensity level judgment circuit being configured to judge an intensity level of light being received from a primary station based on the electric signal converted by said optical reception circuit;

a coding circuit being configured to generate reception light intensity information of the light being received from the primary station based on the judgment by said decoding circuit and the judgment by said reception light intensity level judgment circuit and to code data data and said reception light intensity information for transmission by the digital optical communication device;

wherein the reception light intensity information being generated corresponds to one of a plurality of different light emission intensity values where the plurality of different light emission intensity values each correspond to a different range of light intensity levels of light for the primary station;

an optical transmission circuit being configured to convert the reception light intensity information and the data coded by said coding circuit to an optical signal;

wherein said coding circuit encodes said transmission data, said reception light intensity information of the primary station, and reception normal completion information judged by said decoding circuit, and

wherein said optical transmission circuit converts the transmission data, the reception light intensity information of the primary station, and the reception normal completion information coded by said coding circuit to the optical signal.

10. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit being configured to convert an optical signal received from any external source to an electric signal;

a decoding circuit being configured to decode the electric signal converted by said optical reception circuit and to judge whether or not the decoding is normally completed;

a reception light intensity level judgment circuit being configured to judge an intensity level of light received from a primary station based on the electric signal converted by said optical reception circuit;

a coding circuit configured to generate reception light intensity information of the primary station based on the judgment by said decoding circuit and the judgment by said reception light intensity level judgment circuit and to code data to be transmitted by the digital optical communication device and said reception light intensity information, wherein the reception light intensity information being generated corresponds to one of a plurality of different light emission intensity values where the plurality of different light emission intensity values each correspond to a different range of light intensity levels of light for the primary station;

an optical transmission circuit being configured to convert the reception light intensity information of the primary station and the data coded by said coding circuit to an optical signal;

an optical fiber connected to said optical transmission circuit; and

an optical fiber connected to said optical reception circuit.

11. (Previously Presented) A digital optical communication device comprising:

an optical reception circuit being configured to convert an optical signal received from any external source to an electric signal;

a decoding circuit configured to decode the electric signal converted by said optical reception circuit, to extract a light emission intensity requested from a secondary station, and to judge whether or not the decoding is normally completed;

a reception light intensity level judgment circuit being configured to judge an intensity level of received light based on the electric signal converted by said optical reception circuit;

a secondary station light emission intensity control signal generation circuit that generates light emission intensity information requested to the secondary station based on result of the judgment by said decoding circuit and on the reception light intensity level judged by said reception light intensity level judgment circuit, wherein the reception light intensity information being generated is one of a plurality of different light emission intensity values where the plurality of different light emission intensity values each correspond to a different range of light levels of light of the secondary station;

a coding circuit coding that codes data and the light emission intensity information to be transmitted by the secondary station generated by said secondary station light emission intensity control signal generation circuit; and

an optical transmission circuit that converts the data and the light emission intensity information coded by said coding circuit with the light emission intensity that is extracted by said decoding circuit.

12. (Previously Presented) The digital optical communication device according to claim 11, wherein

said reception light intensity level judgment circuit judges the reception light intensity level based on the electric signal converted by said optical reception circuit from the time at which said decoding circuit detects a start flag to the time at which said decoding circuit detects a stop flag.

13. (Previously Presented) A digital optical communication device comprising:

an optical reception circuit being configured to convert an optical signal received from any external source to an electric signal;

a decoding circuit that decodes the electric signal converted by said optical reception circuit, that extracts a light emission intensity requested from a secondary station, and that judges whether or not the decoding is normally completed;

a reception light intensity level judgment circuit that judges a reception light intensity level based on the electric signal converted by said optical reception circuit;

a secondary station light emission intensity control signal generation circuit that generates light emission intensity information requested to the secondary station based the judgment by said decoding circuit and on the reception light intensity level judged by said reception light intensity level judgment circuit;

a coding circuit being configured to code data data and the light emission intensity information generated by said secondary station light emission intensity control signal generation circuit for transmission by the digital optical communication device; and

an optical transmission circuit being configured to convert the data and the light emission intensity information coded by said coding circuit with the light emission intensity extracted by said decoding circuit;

wherein said reception light intensity level judgment circuit judges the reception light intensity level by measuring a pulse width of the electric signal converted by said optical reception circuit.

14. (Original) The digital optical communication device according to claim 11, further comprising:

an optical fiber connected to said optical transmission circuit; and

an optical fiber connected to said optical reception circuit.

15. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit being configured to convert an optical signal received from any external source to an electric signal;

a decoding circuit being configured to decode the electric signal converted by said optical reception circuit, to extract a light emission intensity information from a secondary station, and to judge whether or not the decoding is normally completed;

a reception light intensity level judgment circuit being configured to judge a reception light intensity level based on the electric signal converted by said optical reception circuit,

a primary station light emission intensity control signal generation circuit configured to determine a light emission intensity of a primary station based on the secondary station light emission intensity information extracted by said decoding circuit, based on the judgment by said decoding circuit, and based on the judgment by said reception light intensity level judgment circuit;

wherein the light emission intensity determined by said primary station light emission intensity control signal generation circuit is one of a plurality of different light emission intensity values, where the plurality of different light emission intensity values each correspond to a different range of light intensity levels of light;

a coding circuit that is configured to code data and information on the light emission intensity of the primary station determined by said primary station light emission intensity control signal generation circuit; and

an optical transmission circuit being configured to convert the data and the light emission intensity information coded by said coding circuit to an optical signal with the light emission intensity determined by said primary station light emission intensity control signal generation circuit.

16. (Withdrawn) The digital optical communication device according to claim 15, further comprising:

an optical fiber connected to said optical transmission circuit; and

an optical fiber connected to said optical reception circuit.

Claims 17-19 (Canceled)

20. (Previously Presented) A digital optical communication method comprising the steps of:

converting an optical signal received from any external source to an electric signal;

decoding said converted electric signal;

extracting a light emission intensity requested from a secondary station,

judging whether or not the decoding is normally completed;

wherein the extracted light emission intensity requested from a secondary station corresponds to one of a plurality of different light emission intensity values, where the plurality of different light emission intensity values each correspond to a different range of light intensity levels of light at the secondary station;

judging a reception light intensity level based on the converted electric signal;

generating light emission intensity information based on result of said judgement as to whether or not the decoding is normally completed and on said judged reception light intensity level;

coding data to be transmitted and said generated light emission intensity information; and

converting said coded data and said coded light emission intensity information to an optical signal with said extracted light emission intensity.

21. (Canceled)

22. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit being configured to convert an optical signal received from any external source to an electric signal;

a decoding circuit being configured to decode the electric signal converted by said optical reception circuit and to judge whether or not the decoding is normally completed;

a reception light intensity level judgment circuit that judges an intensity level of light being received based on the electric signal converted by said optical reception circuit, wherein circuitry of the reception light intensity level judgment circuit is configured so as to output one intensity level judgment signal from a plurality of different intensity level judgment signals, said one intensity level judgment signal being representative of one determined light emission intensity;

a coding circuit that codes data to be transmitted;

an optical transmission circuit that is configured to determine a light emission intensity based on the judgment by said reception light intensity level judgment circuit and the judgment

by said decoding circuit and to convert the data coded by said coding circuit to an optical signal with the determined light emission intensity; and

wherein circuitry of the optical transmission circuit is configured so as to be capable of outputting optical signals having any one of a plurality of light emission intensities and wherein a specific one of the plurality of light emissions intensities is selected as said determined light emission intensity responsive to said one intensity level judgment signal.

23. (Withdrawn) The digital optical communication device according to claim 22, wherein

said reception light intensity level judgment circuit compares the electric signal resultant converted by said optical reception circuit with a plurality of reference voltages, and judges said intensity level of the received light based on result of the comparison.

24. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit configured to convert an optical signal received from any external source to an electric signal;

a decoding circuit being configured to decode the electric signal converted by said optical reception circuit, to judge whether or not the decoding is normally completed, and to extract reception light intensity information of a secondary station;

a coding circuit configured to code data for transmission;

an optical transmission circuit being configured to determine a light emission intensity based on the reception light intensity information of the secondary station extracted by said decoding circuit, and to convert the data coded by said coding circuit to an optical signal with the determined light emission intensity; and

wherein the determined the light emission intensity is selected from a plurality of different light emission intensity values, where the plurality of different light emission intensity values each correspond to a different range of light intensity levels of light at the secondary station.

25. (Withdrawn) The digital optical communication device according to claim 24, wherein

said decoding circuit decodes the electric signal converted by said optical reception circuit and extracts the reception light intensity information and reception normal completion information of the secondary station, and

said optical transmission circuit determines the light emission intensity based on the reception light intensity information and the reception normal completion information of the secondary station that are extracted by said decoding circuit, and converts the data coded by said coding circuit to the optical signal with the light emission intensity.

26. (Withdrawn) A digital optical communication device comprising:

an optical reception circuit being configured to convert an optical signal received from any external source to an electric signal;

a decoding circuit being configured to decode the electric signal converted by said optical reception circuit and to judge whether or not the decoding is normally completed;

a reception light intensity level judgment circuit configured to judge an intensity level of light being received from a primary station based on the electric signal converted by said optical reception circuit;

a coding circuit configured to generate reception light intensity information of a primary station based on the judgment by said decoding circuit and the judgment by said reception light intensity level judgment circuit and to code data to be transmitted and said reception light intensity information of the primary station, wherein the reception light intensity information being generated corresponds to one of a plurality of different light emission intensity values where the plurality of different light emission intensity values each correspond to a different range of light intensity levels of light for the primary station; and

an optical transmission circuit being configured to convert the reception light intensity information and the data coded by said coding circuit to an optical signal.

27. (Withdrawn) A digital optical communication method comprising the steps of:

converting an optical signal received from any external source to an electric signal;

decoding said electric signal resultant from conversion and judging whether or not the decoding is normally completed;

judging an intensity level of received light based on said electric signal and providing a specific one of a plurality of different intensity judgment signals, said specific one judgment signal being representative of one determined light emission intensity;

coding transmission data;

determining a light emission intensity based on said judged intensity level of the received light and on result of said judgment as to whether or not the decoding is normally completed; and

converting said coded transmission data to an optical signal with the determined light emission intensity, wherein said converting includes selecting a specific one of a plurality of different light emission intensities as the determined light emission intensity based on said specific one intensity level judgment signal.

28. (Withdrawn) A digital optical communication method comprising the steps of:

converting an optical signal received from any external source to an electric signal;

decoding said electric signal,, judging whether or not the decoding is normally completed, and extracting reception light intensity information of a secondary station from the decoded electrical signal;

coding data to be transmitted;

determining a light emission intensity based on said extracted reception light intensity information of the secondary station, and converting said coded data to an optical signal with the determined light emission intensity; and

wherein the determined the light emission intensity is a selected one of a plurality of different light emission intensity values, where the plurality of different light emission intensity values each correspond to a different range of reception light intensities of the secondary station.

29. (Withdrawn) A digital optical communication method comprising the steps of:

converting an optical signal received from any external source to an electric signal;

decoding said electric signal and judging whether or not the decoding is normally completed;

judging an intensity level of light received from a primary station based on said electric signal;

generating reception light intensity information of the primary station based on said judged intensity level and the judgment as to whether or not the decoding is normally completed, and coding data to be transmitted and said reception light intensity information, wherein the reception light intensity information being generated corresponds to one of a plurality of different light emission intensity values where the plurality of different light emission intensity values each correspond to a different range of light intensities; and

converting said coded reception light intensity information and said coded transmission data to an optical signal.

30. (Previously Presented) A digital optical communication method comprising the steps of:

converting an optical signal received from any external source to an electric signal;

decoding said electric signal, extracting a secondary station light emission intensity of optical signals from a primary station, and judging whether or not the decoding is normally completed;

judging a reception light intensity level of optical signals from the secondary station based on said electric signal;

determining a light emission intensity of a primary station based on said extracted secondary station light emission intensity of the primary station optical signals, based on said judgment as to whether or not the decoding is normally completed, and based on said judged reception light intensity level for secondary station optical signals;

coding data to be transmitted and information on said determined light emission intensity of the primary station; and

converting said coded data and said coded light emission intensity information to an optical signal with said determined light emission intensity.

31. (Previously Presented) The digital optical communication method of claim 30, wherein said determining includes comparing the extracted secondary station light intensity with the judged reception light intensity level.

32. (Previously Presented) The digital optical communication method of claim 30, wherein the determined the light emission intensity is selected from a plurality of different light emission intensity values.